

ROE (J. O.)

ADENOID GROWTHS
IN THE
VAULT OF THE PHARYNX

THEIR REMOVAL BY THE GALVANO CAUTERY.

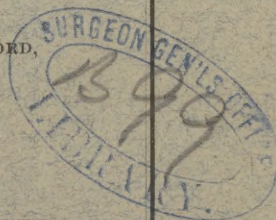
BY
J. O. ROE, M.D.,
ROCHESTER, N. Y.

Fellow of the American Laryngological Association.

(Read before the Central New York Medical Association, 1879.)

*Reprinted from THE MEDICAL RECORD,
September 13, 1879.*

NEW YORK:
WILLIAM WOOD & COMPANY
1879.



ADENOID GROWTHS

IN THE

VAULT OF THE PHARYNX

* THEIR REMOVAL BY THE GALVANO-CAUTERY.

BY

J. O. ROE, M.D.,

ROCHESTER, N. Y.

Fellow of the American Laryngological Association.

(Read before the Central New York Medical Association, 1879.)

Reprinted from THE MEDICAL RECORD,
September 13, 1879.

NEW YORK:
WILLIAM WOOD & COMPANY
1879.



ADENOID GROWTHS IN THE VAULT OF THE PHARYNX—THEIR REMOVAL BY THE GALVANO-CAUTERY.

In the vault of the pharynx, just below the junction of the vomer with the sphenoid, is found an aggregation of glandular tissue consisting mostly of the stroma of the mucous membrane which has become more strongly developed, and containing in its meshes of network a large supply of lymphoid cells.

This tissue is ordinarily spread out somewhat thinly over the vault, and extends over the pharyngeal projection of the Eustachian tubes, and into the fossæ of Rosenmüller. Often, however, it is less flattened out, forming a sort of cushion in appearance. In some cases it is concentrated or accumulated into a more rounded mass, and is then called, from its histological composition, the "pharyngeal tonsil." At other times it is laid in longitudinal ridges or combs of various lengths, running antero-posteriorly or obliquely, and separated by fissures or lacunæ of varying depths. It is covered with ciliated epithelium, and the line of demarcation between it and the surrounding tissue can usually be distinctly traced.

Henle speaks of this tissue as conglobated glandular substance. Luschka and His describe it as adenoid, while Kölliker considers it as an increased develop-

ment of the cystogenetic layer of the mucous membrane; that is, resembling the lymphatic gland-tissue, with extensive distribution of lymphoid cells in the interspaces.

The existence of this glandular tissue in the vault of the pharynx was recognized long before the introduction of the rhinoscope into practical medicine; but so little was known concerning its nature and diseases that mention of it was seldom made in medical literature. When observed, which was usually during anatomical dissections, it was described as simply "a chain of glands extending across the pharynx from one Eustachian tube to the other." It did not, however, escape the attention of the celebrated William Hunter, who exhibited in his museum careful dissections of this tissue, both in its normal and pathological condition.*

Horacé Green briefly mentions these adenoid growths in his work on "Follicular Disease of the Pharyngo-Laryngeal Membrane;" Czermak speaks of them as "cock's comb protuberances;" Türck refers to them as "vegetations;" while Semeleder describes two cases of polypi from the roof, which Meyer considers must have belonged to this category.

The first recorded attempt at examination of these growths by means of the rhinoscopic mirror was made by Voltolini in 1865.† He observed comb-like, club-shaped, or berry-shaped formations in this region, which he described as polypoid vegetations of the mucous membrane; and in 1868 a very admirable and elaborate description of the microscopic anatomy of this tissue was given by Prof. Luschka.‡

* Cohen : Diseases of the Throat and Nasal Passages, 1879, p. 253.

† Wiener Medizinische Zeitung, No. 33, 1865.

‡ Der Schlundkopf der Menschen, Tübingen, 1868.

But little practical attention, however, was directed to the disease of this tissue until Dr. William Meyer, of Copenhagen, gave the results of a careful study of this subject in an elaborate article on "Adenoid Vegetation of the Naso-Pharyngeal Cavity." * He says: "These vegetations are found to consist of adenoid tissue, and are therefore morbid growths of the closed glandular structure of the pharynx. They vary in form and consistency, sometimes being solid and firm, and at others soft, highly vascular, and prone to bleed."

The diseases most common to the gland-tissue in the vault of the pharynx are those of a chronic inflammatory or catarrhal nature, from exposure to various irritating causes to which it is constantly subjected, leading to hypertrophy and adenomatous growths. In fact, the cause, history, and progress of the affections of this tissue are those of ordinary post-nasal catarrh; and a great number of the cases of so-called chronic post-nasal catarrh, commonly considered incurable, will be found to be due to localized disease of this tissue; and when this tissue is removed, all symptoms of a general catarrh will readily disappear.

These adenomatous neoplasms may be divided, according to the nature or manner of attachment, into sessile and pedunculated. In the early stages of a growth it is often difficult to determine which of the two forms it will assume; but the sessile is by far of the more frequent occurrence. These growths vary in size from a small projection to one sufficiently large to completely fill the nasal pharynx,† and, as sometimes

* Medico-Chirurgical Transactions, Vol. LIII., p. 191, London, 1870.

† I prefer the classification adopted by Loewenberg, *i. e.*, of applying the term nasal pharynx to that portion of the pharynx above the border of the palatine arch, and buccal pharynx to that portion below the palatine arch.—*Les Tumeurs adénoïdes du pharynx nasal*. Paris, 1879, p. 1 (1).

seen, to project below the palatine border; moreover, owing to their vascularity, they appear at times much larger than at others. Their frequent association with enlarged granulations in the upper part of the pharynx has led many* to believe in the existence of a connection between the two. Such, anatomically speaking, is not the case. The granulations consist in hypertrophy of the solitary glands; while in the adenoid enlargement, all the elements of the mucous membrane are associated in the hyperplastic action.

The buccal pharynx is composed of connective tissue, while in the nasal pharynx the adenoid tissue largely predominates, and the mucous membrane is much thicker and more vascular.

Etiology.—The causes to which these growths are most frequently attributed, are coryza and exposure to cold and damp. Owing to the readiness of this adenoid tissue to absorb moisture on exposure to humid atmospheres, more or less stasis is produced, exudation takes place from the turgid vessels into the substance of the tissue, and becoming organized, results in a permanent enlargement. Adenoid growths are found most frequently in persons leading an indoor life, owing to the debility of the local parts from lack of air and exercise, and the congestion produced by sudden change from hot rooms to cold or damp air.

The cause for the greater frequency in children lies in the lymphatic temperament, and the anatomico-physiological connection, through the lymph channels, between the naso-pharyngeal region and the cervical lymphatics. The larger size of the channels in children also explains the frequent occurrence of enlarged

* Locwenberg, loc. cit., p. 8.

glands of the neck in those suffering from nasal catarrh. Often an inherited scrofulous taint predisposes to these growths, and they are very frequently associated with cleft palate, owing to the direct exposure of this region to various irritating causes.

The age at which these growths are most frequently found is during childhood and youth, but they are also found in many cases of adults of both sexes; although rarely to the extent of filling the cavity of the nasal pharynx, as frequently found in children. They are not known, however, to occur in advanced life.

Symptoms.—In the course of the growth of these tumors, the first function materially interfered with is the free normal respiration; and as the growth increases so as to fill more and more completely the cavity of the nasal pharynx, all the functions depending on a normal condition of these parts—as the respiration, phonation, smell, and hearing become correspondingly impaired.

In *children*, the growths are usually much larger than in adults, proportionate to the size of the nasal cavity, consequently with them nasal respiration is more seriously interfered with. In children, the first and most prominent symptom is the constantly open mouth, which occasions later on the drawing down of its corners; the lengthening of the line of the nasal wing; a stretched and wrinkled appearance of the skin of the face; a flattened or compressed appearance of the nose from arrested development, and, together with a frequently sallow complexion, gives to the child a peculiar indolent or vacant expression. Sometimes a drawing down of the inner canthus of the eye, so strongly as to give to the face a strange Chinese

appearance, as has been observed by Michel; * “deafness and a peculiar deadness to the articulation of certain consonants, as *m* being pronounced like *b*, and *n* like *d*; a peculiar way of pouting or twisting their lips, toying with them as it were,” † are also striking characteristics.

In *adults*, these symptoms are not usually so well marked, for it is seldom that the size of the growth is sufficient to completely obstruct nasal respiration. They are very clearly described by Dr. Andrew Clark, ‡ as “discomfort, aching, or pain in the neighborhood of the soft palate and posterior nares; tingling, or sense of fulness about the root of the nose, frontal headache, a mawkish or fœtid taste in the back of the mouth, a thick mucus, purulent, or cheesy secretion discharged at intervals, chiefly through the mouth, by means of snorting nasal inspirations, followed by hawking, slight perversion of taste and smell, alterations of voice, sometimes temporary deafness from obstruction of one or both Eustachian tubes, and an abundant secretion of wax in the external ear.”

We will now consider the relation of these growths to these important functions. The injurious results to both organs by the substitution of buccal respiration for nasal respiration is at once apparent. During the passage of air through the tortuous nasal passages it is subjected to two important physical changes:

- 1st. It becomes elevated in temperature.
- 2d. Laden with moisture by the evaporation going on from the extensive surface.

* Diseases of the Nasal Cavity and the Vault of the Pharynx. Cologne, 1876. English translation by Shurley and Yemans, p. 82.

† Meyer: Medico-chirurgical Trans., loc cit.

‡ London Hosp. Reports, Vol. I.; Spencer Watson, Diseases of the Nose, p. 65.

The effect of buccal respiration on the pharynx is often quite marked. The cold air strikes the pharynx, heat and moisture are abstracted, and the effect is to excite secretion and induce irritation, resulting in granular pharyngitis. In many cases, however, this pharyngitis is produced by other causes, which tend in turn to induce these adenoid growths.

It has been pointed out by Stoerek that the mucous membrane becomes œdematous after obstruction of nasal respiration for a length of time, and the mucous follicles undergo colloid degeneration. The degeneration, however, is the result of the hypertrophy as a primary cause, and frequently results in sufficient infiltration, particularly over the inferior turbinated bones, to require active treatment and often instrumental removal. The same degeneration may extend to the terminal fibres of the olfactory nerve in the pituitary membrane, and thus enfeeble or destroy the *sense of smell*. Occlusion of the nares will also produce the same result by preventing the inspiration or entrance of the odoriferous particles.

With the enfeebling of the sense of smell comes the impairment of an important element in the *sense of taste*. The sense of taste proper is only capable of distinguishing the four elementary properties of sapid substances, as sweet, sour, saline, and bitter, while the perception of all the aromatic flavors depends on the sense of smell. The lack of this element in the taste is often observed in those whose smell is destroyed, and the experiment can readily be made by tasting a choice brand of wine with the nostrils closed, when it will seem flat and insipid.

The most important office of the passage of air through the nose before it enters the lungs, is the arresting or filtration, so to speak, of foreign substances,

as dust, spores, etc., from the air; the necessity of which is shown by the experiments of Tyndall, Pasteur, and others. Smith and Davis* estimate that there are ordinarily contained in the air we breathe during ten hours, $37\frac{1}{2}$ millions of spores. A microscopic examination of the nasal mucus and the air found in a crowded, illy-ventilated room, will at once convince one of the importance of nasal respiration in protecting the pulmonary organs; and aptly illustrates the old proverb, "Shut your mouth and preserve your life."

The cutting off of nasal respiration exerts a marked influence in arresting the *development of children*. The first and most serious impediment is its interference in nursing, for as soon as the child closes its mouth on taking the breast it is at once unable to breathe, and has to remove its mouth to take breath. The transitory symptoms of false croup, or laryngitis stridulus, occurring in the early part of the night, to which many children are subject, are often due to this cause. On lying down, while sleeping, the tongue dropping back closes against the soft palate, and, acting as a valve, produces marked stridulous breathing, and should the mouth become closed, suffocation is at once produced, and the child starts up with a cry and spasmodic gasping for breath. In this manner can be explained the restlessness and spasmodic starting in sleep in many children, the cause of which is so often looked for in some nervous derangement. Several cases of this kind have come under my observation, and on the removal of the obstruction the trouble entirely disappeared. I can now recall a very marked case of this kind which occurred several

* Loewenberg : loc. cit., p. 21.

years ago. The patient was seen by several noted physicians, but none succeeded in giving any relief, as all their attention was directed to the nervous system.

The deformity known as *chicken- or pigeon-breast* is often produced by these obstructions, concerning the cause of which the general examination or history will give no clue. In the growth of adenoid tumors there is a transition stage, before the nasal respiration is completely cut off and buccal respiration established, when a deficient amount of air enters the lungs, and by the action of the inspiratory muscles tends to collapse the chest, the pliable ribs giving way to the external pressure. Dupuytren and Roberts attributed this deformity to enlarged tonsils, entirely overlooking the fact that they might be the result of these growths.

Open and clear nasal passages are of the utmost importance in the function of speech, particularly in the pronunciation of the nasal consonants *m* and *n*, which are pronounced *b* and *d* when the posterior nasal opening is occluded. The manner in which this substitution takes place is explained by Loewenberg,* as follows: In the pronunciation of *m*, the air is emitted through the nose, while the buccal cavity is closed in front by the compression of the lips one against the other, the posterior nasal opening and larynx remaining at the same time open. The same configuration of the buccal cavity is necessary for the pronunciation of *b*, except that the soft palate is raised, intercepting the passage through the nose, and the current of air fills the mouth, pressing against the lips, forcibly separating them.

Thus we see that when the posterior nasal passage

* Loc. cit., p. 27.

is closed by the pathological obstruction, the tumor, on attempting to articulate *m*, it becomes impossible. The expired current of air is compelled to escape by the mouth, and *b* is pronounced. The process is exactly the same in the substitution of *d* for *n*, except that the anterior closure of the buccal cavity is made by the tongue, the tip of which is brought in contact with the superior incisors and alveolar process when *n* is pronounced, the current of air being compelled to pass through the open posterior nasal passage; while in the pronunciation of *d*, the tongue is forcibly separated from the teeth and alveolar process. Thus the labial and lingual resonants, *m* and *n*, are replaced by the labial and lingual explosives, *b* and *d*, so that moon is pronounced *bood*; common, *colbod*; and nose, *loze* or *doze*. The peculiar nasal twang is also so characteristic as to be readily distinguished when heard.

The influence on the voice in singing is often marked. It muffles the voice and interferes with the emission of high notes by preventing the elevation of the soft palate. Cases are recorded when, after an operation, the voice rose a tone and a half.

Effect on the ear.—Pharyngeal adenoid tumors are nearly always associated with chronic inflammation—as pharyngitis, rhinitis, sometimes hypertrophy of tonsils, and, most frequently of all, with Eustachian catarrh. Meyer found, in 175 cases which came under his observation, that in 130 there were auricular complications.

The ear may be affected by the tumor in three ways:

1st. By the propagation of acute or chronic inflammation through the Eustachian tube to the middle ear.

2d. By the pressing of the tumor against the orifice of the tube, mechanically closing it, and by thus pre-

venting the entrance of air, the membrana tympani becomes collapsed, and in cases of Eustachian catarrh prevents escape of the mucus secreted, causing sup-puration and perforation of the drum-head.

3d. By mechanically exhausting the middle ear of air during deglutition, in cases where there is complete obstruction of the nasal openings.

The influence of nasal respiration on the ear is illustrated by Mr. George Catlin, in his history of "The North American Indians." Among two millions Indians, he found not one who was deaf or breathed through the mouth, except three or four deaf-mutes; and in the memory of the chiefs of 150 tribes, not one case of deafness could be remembered to have occurred. This is explained by the mother always closing the mouth of the child whenever it attempted to breathe through it.

Diagnosis.—The diagnosis of these growths is ordinarily quite easy. In many cases the symptoms are sufficient to afford very conclusive evidence of their existence, but it is only by a rhinoscopic or digital examination that a positive diagnosis can be made. Michel* states that he is ordinarily able to recognize them through the nostrils; but it has not been my good fortune to be able to do so only in very exceptional instances. Whether Michel's success was due to the large-sized nasal openings in the people of Cologne I cannot say.

In the normal vault the only projection to be seen by the rhinoscopic mirror is the pharyngeal orifice of the Eustachian tube, consequently any considerable elevation above the normally smooth walls is at once to be considered an abnormal growth. By means of

* Loc. cit., p. 83.

the rhinoscopic mirror we are able to determine their exact location, size, color, nature of secretion, if multiple or single, pedunculated or sessile. When sessile they usually form one rounded mass, with numerous small openings, which lead to a general cavity with communicating recesses.* From each opening will be seen exuding a thick viscid mucus, ordinarily quite clear, but sometimes discolored and mixed with pus or blood. Often this material will dry on the surface, forming a sort of cap, which, when removed, will represent the outline or configuration of the surface of the tumor. When pedunculated they are usually multiple, and hang down from the vault in clusters, or berry-shaped excrescences. They are usually of a bright red color, but sometimes have the appearance of an hypertrophied tonsil. Their presence will sometimes be indicated by their interfering with the introduction of the Eustachian catheter.

In many cases a digital examination, as proposed by Meyer, is necessary to determine the consistency, if firm or flaccid, the exact attachment, and to distinguish in doubtful cases if the enlargement is a fleshy growth or an osseous projection or tumor. After a digital examination there is usually more or less bleeding, and so great is their vascularity that, as observed by Dr. Cohen,† slight hemorrhage is often produced by the projection of a jet of water against them from the posterior nasal syringe. Meyer likens the sensation perceived by the finger to a bunch of earth-worms. A like sensation is, however, often produced by the constriction upon the finger of the muscles of these parts.

* Clark, London Hosp. Rev., Vol. I.

† Loc. cit., p. 259.

In early childhood the symptoms which these growths produce may be mistaken for those produced by coryza and hypertrophy of the tonsils, and in adults with chronic naso-pharyngeal catarrh, hypertrophy of the tonsils, and nasal and naso-pharyngeal polypi. In each of these cases a careful examination will reveal the exact nature of the difficulty.

The *prognosis* is always favorable as far as removal is concerned, and the affections which they have produced in other organs are usually much more amenable to treatment than when produced by other causes.

Treatment.—The treatment of these growths is divided into local and general. The association of these growths with the lymphatic temperament is so frequent that more or less general treatment is usually called for. It should consist in good hygiene, plenty of exercise in the open air, cold sponge or sea baths, and cod-liver oil, bitters, iron, and iodine preparations if required. All irritants, as too hot or cold food, alcoholic liquors, tobacco, bad air, and excessive use of the voice, should be avoided. In cases where there is no diathesis to combat, only the injuries done by the presence of the tumor have to be counteracted.

The *local* means employed are ablation and cauterization. The method usually employed for ablation is by crushing, by means of forceps with strong blades curved at a proper angle to pass up behind the palate; the curette, as used by Loewenberg, consisting of a spoon-shaped blade with cutting-edge, and attached to a handle by means of a slender shank; the *écraseur*, as recommended by Maisonneuve and Wilde; and the cutting forceps, as devised and used by Fauvel, Stoerck, and Cohen. These cutting-forceps are often very convenient as an expeditious means of removing small growths. There is but lit-

the danger of injury resulting from their use, as whatever adventitious tissue is found in the vault is legitimate prey. Meyer has recommended an annular knife to be passed through the nostril, by which he scrapes off the tumors. This, however, is only applicable in cases of large vegetations.

Since the introduction of the galvano-cautery into the treatment of these growths by Voltolini in 1867, it has been fast superseding all forms of caustic applications and operative procedures. Its advantages over all other methods are very great, due to the rapidity and effectiveness of its action, and the avoidance thereby of hemorrhage, which in the cutting operations is frequently very profuse and exceedingly troublesome, owing to the great vascularity of the parts.

The cautery can be used in two ways, according to the variety of the growths. For those which are pedunculated, the platinum wire loop passed through the nostril and around the tumor is best adapted; and for the sessile variety, the curved electrode devised by Lincoln,* which is passed up behind the palate, in the end of which is a coil or disc of platinum protected from injuring the surrounding parts by a shield, and is made to fit Lieter's handle. I have recently had an electrode made with the stem coated with asbestos, which protects the parts entirely in case the stem becomes heated.

In some cases a simple hook for holding the palate is all that is required; but in cases of muscular and rigid palates, where gagging is easily induced, the most reliable retractor I have found to be two soft tapes passed through the nostrils and out of the mouth

* MEDICAL RECORD, New York, Dec. 30, 1876, p. 840.

and tied over the upper lip in front, as suggested by Dr. Cohen; or a rubber cord used in a similar manner, as proposed by Dr. Wales. By thus drawing the soft palate forcibly forward the shield can to advantage be dispensed with, and by means of the rhinoscopic mirror the entire operation can be performed under sight; and it can readily be seen when the entire destruction of the growth is accomplished. Ordinarily, the use of anæsthetics is unnecessary, as the pain attending the operation is not great; but in some cases of nervous patients, or very irritable throats, they are advisable and occasionally indispensable. The battery which I use is Dawson's, manufactured by Geo. Tie-
mann & Co., which, with Lieter's handle, leaves but little to be desired for a perfect cautery apparatus.

To illustrate the preceding remarks, I will select a few cases from my note-book as we meet them in practice.

CASE I.—Miss H. D—, æt. 22 years. Referred to me Feb. 16, 1875; suffering from trouble in her throat, and deafness. She complained of stoppage of the nares, with a sensation of fulness in the back part of the nares just above the soft palate, and of a thick mucous discharge from posterior nares. Her voice had a muffled and indistinct expression. She also complained of an itching sensation in external auditory meatus, and there was an abundant secretion of wax in the ears. On rhinoscopic examination I found a large growth of adenoid tissue almost filling the vault, pressing on the pharyngeal opening of the Eustachian tube, and hanging down behind the velum, which had quite a polypoid appearance. Not having a galvano-cautery at hand at the time, I removed it with a pair of sharp-edged scoop-forceps, such as are used by Meyer. Considerable bleeding occurred at the re-

moval, but it was readily controlled by perchloride of iron. She continued under treatment for a short time for the deafness, and also some naso-pharyngeal catarrh with which the growth was associated. The latter trouble was removed by local treatment, the closed Eustachian tubes were opened by the introduction of the Eustachian catheter, and her hearing was left but slightly impaired.

June 3, 1877.—She returned with a reappearance of the adenoid growth to nearly its former size, and an increase in her deafness. I then applied the galvano-cautery. One application was sufficient to destroy the growth entirely; and since her voice has been good, hearing greatly improved, and there has been no tendency to a return of the growth.

CASE II.—Miss S. J.—, æt. 21 years. Had suffered from more or less throat trouble for the previous seven years. Had also had a great deal of cough and expectoration which proceeded from a bronchial catarrh in right lung. The trouble in throat consisted in an irritation and tickling, with stoppage and sensation of fulness in posterior nares, just above the soft palate. There was also considerable tenacious discharge from posterior nares, obliging her to hawk and cough in order to keep her throat clear. She had also considerable frontal headache. On rhinoscopic examination there was seen a mass of adenoid tissue obstructing the passage; the growths being thrown into folds, giving it a cock's-comb appearance. A profuse tenacious discharge was poured from the openings of the lacunæ of the glands, which were very sensitive and bled on the slightest touch. Her singing-voice, which was before very clear and strong, had become flat and the compass restricted. Removal of this diseased tissue by the galvano-cautery was advised and readily

assented to. The first application of the cautery did not result in the complete removal; accordingly, after an interval of about ten days, it was repeated with entire success. Local applications were made to the surrounding congestion, and the slight thickening which the tumors had caused; inhalations and appropriate internal remedies for the bronchial catarrh were given; and she is now enjoying excellent health.

CASE III.—Miss E. W——, æt. 23 years. She was slender, delicate, and of a scrofulous diathesis, although quite well until the previous September. Came under my care Dec. 15, 1876. She had been greatly annoyed for about three months by a very profuse discharge of a thick tenacious mucus from the posterior nares, which she was unable to expectorate or clear from her throat. The only manner by which she could dispose of it was by swallowing, which would bring on attacks of sick-headache and nausea every few days. The discharge was aggravated by damp weather or colds, increasing accordingly the frequency of the attacks of nausea, which were very exhausting. She lost flesh and strength quite rapidly. Had a constant dull frontal headache, also an irritation in throat which excited cough, some obstruction to nasal respiration, and difficulty in her enunciation. On rhinoscopic examination, the vault was found filled with hypertrophied glandular tissue, from which the mucus was exuding. Digital examination gave to the finger the peculiar sensation of a bunch of earth-worms, as described by Meyer. The posterior nares were cleansed thoroughly every day by means of the post-nasal syringe, with a solution of chlorate of potash, chloride of sodium, and carbolic acid. This relieved the vomiting and sick-headache. Tonics and good nutriment were given, and as soon as she was restored to suffi-

cient strength the galvano-cautery was applied to the diseased tissue in the vault. Two applications were required before it was entirely removed. After the disappearance of the tissue and the cessation of the discharge, the nausea and sick-headache left, her appetite returned, and it was surprising to note the rapidity with which she regained her flesh and strength.

CASE IV.—The most interesting and characteristic case of this affection came under my care last October. Miss Z. M——, aged thirteen years, a bright, well-developed, and well-nourished girl; scrofula and phthisis markedly hereditary from both parents. One year ago last February she had scarlet fever, but it was followed by no observable sequelæ at the time. Last February, one year after, she began to have trouble in her throat and posterior nares, accompanied by deafness. She had also a discharge of clear but thick viscid mucus from posterior nares, and an irritation in throat producing cough. Since the trouble came on she has had a growing impediment in her speech, giving her voice a muffled, flat sound, depending on deficient enunciation of the nasal consonants. She snored, and frequently started up suddenly while sleeping. She breathed chiefly through the mouth, because of stoppage in the nose, which, with her deficient hearing, gave her a very vacant, staring expression. Her friends had become quite anxious concerning her hearing, and had had her under the care of two aurists of distinction, during the past year, without benefit resulting. On examination, marked hypertrophy of the adenoid tissue was found nearly closing the post-nasal openings, extending into the fossæ of Rosenmüller, and encroaching on the pharyngeal opening of the Eustachian tubes, oc-

cluding them, and thereby causing deafness. The membranæ tympani were markedly concave, but otherwise normal. The opening of the Eustachian tubes by the catheter partially restored the hearing, but only for a short time. Removal of this tissue was advised as the only means of permanent benefit, and the use of the galvano-cautery recommended and readily assented to. The operation was performed with the use of an anæsthetic, Dec. 12th, my friend, Dr. E. V. Stoddard, assisting. The result was very gratifying. Her hearing was quite nearly restored, the hacking cough passed away, and the impediment in her speech also disappeared.

In many cases it is very difficult, often impossible, to obtain the assent of the patient, or parents in case of children, to any method of operative interference; consequently, in such instances, the removal of the tissue must be effected by a chemical means. Various caustic applications are used and recommended for such purposes; as, the Vienna paste, London paste, nitric acid, chromic acid, nitrate of silver, nitrate of zinc, etc. The one best adapted for these applications I have found to be chromic acid, on account of its rapid action and the peculiar advantage which it possesses over the others of causing but a very slight amount of pain proportionate to the destructiveness of tissue.

From a number of cases, I will cite the following as a typical one in which it was used. Frank F., an active, bright boy of thirteen years; home, San Francisco, Cal.; attending school in Oswego. He had been troubled with catarrh for several years, but otherwise enjoyed ordinarily good health. After an attack of measles three years before, his catarrhal trouble became much worse and his health impaired.

He had a profuse mucous discharge from the posterior nares, proving a great annoyance to himself and friends, particularly at meals. There was great obstruction to nasal respiration, which on taking cold would be entirely cut off. The nasal resonance was gone from the voice, or, in common parlance, he spoke through his nose. During the night he snored loudly. Examination revealed a mass of hypertrophied adenoid tissue in the vault of the pharynx, about the size of a sparrow's egg, nearly filling the superior pharyngeal space, and from the openings in this tissue were poured out profusely a glairy mucous discharge. There was also moderate enlargement of the tonsils, but no other disease in or about the throat or nares to be found. I advised excision of the tonsils, and removal of the adenoid growth by the galvano-cautery, as the most expeditious means of accomplishing the desired end. The excision of the tonsils was allowed, but the removal of the adenoid growth by means of the galvano-cautery was objected to. Consequently I had to resort to the application of a caustic, and accordingly used chromic acid. About fifteen applications were required before the complete reduction could be accomplished, owing to the size and firmness of the growth. It was interesting, in this case, to note the cessation of the discharge with the disappearance of the tumor, and also the corresponding improvement in general health. Before this the boy had been subject to frequent colds, but has been entirely free from them since.

Thus it is a common experience to find more or less disease of this adenoid tissue in nearly every case of obstinate or aggravated post-nasal catarrh which one is called upon to treat, varying in degree from a mild catarrhal inflammation confined to the mucous

membrane lining the crypts, and permeating all the channels, as we find in tonsillar catarrh, to extensive disease and hypertrophy of this tissue, blocking up the pharyngeal vault, and producing all the symptoms depicted in the most aggravated cases. And it is in these cases as useless to attempt, by ordinary mild astringent or saline washes, or sprays, to remove the disease thus located almost wholly below the surface, as it is to attempt to remove catarrh or hypertrophy of the tonsils by such means.

Excision or destruction of the diseased tissue is the only means of a radical, permanent, and positive cure.

